Cultural Burn

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Description:

The term *prescribed fire* is all inclusive, conceptually describing managed fire, control burns, and cultural burning. Cultural burning refers to burning specific species and type of resource, a specific style of burning, and burning for a positive result to effect the outcome of targeted cultural resource species.

Cultural because the essence of burning was pertinent and substantial to the cultural livelihood of the Native American, indigenous inhabitant, and or early settler, who lived with the land, on the land, and off the land. Cultural burning by Native Americans interconnected them not only to the land but to their animal, reptile, bird and plant spiritual relatives. Therefore, conducting a cultural burn relates to what they burned, how they burned it, and why they burned it.

Historical Background:

Historical documents state that Native Americans set fires along their trails as they came out of the high mountains and or from their homeland camps as they left their summer or early fall campsites in the forest for their lower elevation foothill homes to live during the winter and spring months.

Once the Euro-american began to settle the Sierras, their historic notes, diaries, and articles describe the Indian taking wet gunny sacks up their trail system on their way to put out another fire. Consistently, the *Kinsman Diary* (Joseph Kinsman Diary 1876 - 1896) spoke of three or four smoke streams rising up out of the foothills, indicating, since there were so few settlers, that these smoke occurrences were the fires of the local North Fork Mono (Nium).

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Other fire-related comments in the *Diary* had Brown, a sheep herder, telling Kinsman to go get the Indians to put out a wildfire, because they knew the best trails to travel on and to manage the fire with.

Another early settler, John O'Neal, talked about local sheepmen who drove their sheep to the mountains in the spring and back down to the foothill pastures in the fall. "At this latter time it was common to see from our front porch the smoke from fires set on Shuteye Ridge by the sheepmen as they left the forest. These fires were set, as was formerly done by nature and the Indians, to keep the forest floor clean of accumulating pine needles, dead limbs, windfalls and similar filth which provide tinder and fuel for the disastrous forest fires we have in this day and age. I was still a lad when old Indians told me how they and their fathers used to burn the forests to improve their hunting grounds. They did not burn the whole forest each year, but would select an area that was growing up with brush and getting an accumulation of needles and other trash. After burning, this area would be a favorite hunting ground for the next few years as the deer would move into the area to get the new brush sprouts as well as the more abundant and favored range plants. After three to five years they would then burn another area" (*Western Livestock Journal*, Two Blades of Grass Where Thousands Grew Before . . ., John O'Neal, 1953).

In the pre-1850 era, our elders tell of ancestral fire management. The story is deeper than just saying, "they lit fires on their way out of the mountains" or "on their way back from over the hill."

Cultural Burning System:

Burning an area means burning that particular spot three times in a ten-year period, typically during the first, third, or fourth year and again between the sixth and tenth year. An area with severe understory is going to need fire again in the third year. After every fire, grass, seedlings, new shoots, and new leaves on burnt bushes all begin to return in the following year. Sometimes the growth is minimal and a passerby would not see the return. For those who live there, the gradual return is obvious. By year two, however, it becomes more evident, and by the third year, one can clearly

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see the renewed growth. Burning on the third year produces a low intensity fire, and by the fourth year the brush and or the undergrowth is much thicker and generates a mid-intensity burn. For the Indians with their wet gunny sacks, on their trail system, the higher the flame of the fire, the harder it was to control.

The Mono have a lifelong learning system that is still practiced (see addendum, Nium Cycle of Life, Goode 2001). The years from fifteen to twenty-five are considered the training years. The timeline is arbitrary. Twenty-five to fifty years of age are the provider years. Fifty to sixty-five are referred to as the wisdom years. Various stages of the elder years start from sixty-five and upwards of 100.

From the 1800s, forward, the Mono had horses and utilized the horse (pre-1800s they ate the horse, post 1850 the horse took on multiple roles). Many Indian cowboys rode well into their eighties. A trip over the hill (over the Sierra Nevada Mountain Range on their way to Mono Lake, Bishop, Big Pine or Bridgeport) took upwards of three to five months per round trip. Traveling mostly after the snow melt, basically July to October or early November, again dependent upon the fall snows in the high passes.

Typically, a young man would accompany an elder from the age of twenty to forty before doing his own thing. It is such a hard trek over the hill that most riders were through traveling that distance by the time they were in their mid-sixties. It's not just the ride; one had to be very cognizant of the wildlife as well as the weather, treacherous landscape and unfriendly Natives. Therefore, the Nium needed to keep their trails open.

This meant a burner had some thirty or so years of burning to do between the years of twenty-five to sixty-five in which they would ignite the landscape. It did not mean they lit fires every time they came out of the mountains. They managed the particular landscape they were traveling through, using the three in ten year increment of burning. Once a fire area has been secured, only two or three fires are necessary over the next twenty years. Therefore, succeeding generations did not have to start new burn areas unless they traveled in or on trails that had not been burned.

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The men were not the only burners. Women and sometimes their children traveled over the Mountain as well, sometimes by horse and sometimes on foot. For the women, the time of travel was pretty much the same as for the men, maybe returning a little earlier. There are stories of an elder woman, since passed on, who made the trip in her late seventies to early eighties. Today, there are several Native groups walking over the passes from one side to the other and some hikers are in their eighties. But hiking a trail over the pass is different than traveling from your home in the lower foothills over the Mountain and back, a month or two later, by yourself or with your family. Pre-1900s the Indians did not have backpacks except for a hide or in later years a quilt top that they slung over their backs. Pre-1850s, the Indian women used a burden basket (cone shaped) with a milk weed strap twined around the basket and hung over the 'front -top' of their heads to carry things in, such as acorns, a baby, clothing, trade goods, etc.

From Tuolumne to Florence Lake there are about five major passes. From the Miwok/Mono of Yosemite south to the North Fork Mono, across the San Joaquin to the Auberry and Cold Springs Mono. The Michahay of the Kings River, Waksache and Dunlap Mono down to the Patwisha on the Kern River, all had their own passes over the Mountain.

Looking at the burn possibilities of the upper watershed, basically 6,000 foot elevation and up, there were upwards of three to six families per tribal group making the trek over the hill. The summer and fall were times when some of the Native folks went to the higher elevations to gather and trade with other native people. The archaeological ecology of the ancestral sites tells us the indigenous people used fire to keep their home-base open and keep the cultural resources abundant. The women were largely incharge of the home-base unless it was strictly a lithic site. If the site has a bedrock and or with mortars, pestles, or manos, that evidences the presence of women and families.

The Socioeconomic Impact of Cultural Burning:

One of the first things upon arriving at a prehistoric site by a Native American archaeological monitor is to observe the cultural resources

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present (this becomes an indicator of why they were there). Throughout the 1.2 million acres of Sierra National Forest, there are 5,000 recorded archaeological sites and more than 6,000 meadows. A large percentage of indigenous camp sites can be found near these meadows.

Archaeological studies have indicated that indigenous people have been living throughout the entire forest for 5,000 plus years and venturing into the Sierras for some 15,000 years. In the lower foothills, artifacts date back 8,000-plus years. In 1800, there were more than 3,000 Nium living on the land (in 1918, Gifford recorded over 1200 North Fork Mono in one pocket of the North Fork Community). Burning for the enhancement of resources for cultural purposes and benefits was an integral part of their livelihood. Settlers and ranchers today are still using the techniques passed down from their grandfathers who learned from the Indians they lived with or were associated with.

From the tribal view at least fifty percent of the forest needs some form of restoration today, and is getting only fifteen percent of the fire needed to burn each year. Understanding and applying the Cultural Burn concept is very important to rejuvenating resources for a healthy forest. The food web is unstable, with thousands of oaks and dozens of oak orchards producing less than five percent of the crop necessary to keep the wildlife population healthy. Now more than ever, it is time to restore the oaks individually and as groves or orchards. Low intensity burning through the oaks is good when the result creates sprouting young shoots. This becomes a “healthy forest indicator” because, without new growth, the old growth eventually stops producing. While the old growth may still be useful as habitat, the large canopy of the oak also deters new growth, by reducing access to rain water, sunlight, and warmth, as well as creating a lack of good producing seed, all necessary for new shoots. When there is new growth, it also becomes an “indicator” for the type of wildlife and the amount of wildlife such as deer that are present. If the duff has not been burned then parasites, weevils and worms, have an impact on the acorn nut, thereby reducing the regeneration of a new crop.

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Socioeconomic Benefits of Cultural Burning:

One fully producing black oak tree should produce a minimum of 200 to 250 pounds of acorns. This would entail approximately three separate harvests over a period of two months. One of the Tribe's most prolific acorn practitioners, who markets statewide, once gathered eight 60 pound sacks of acorn from her grandmother's property and special black oak that is tended and smoked annually. In addition, she made another trip back to the tree to fill a couple of five gallon buckets, amounting to over 500 pounds from one tree. This healthy black oak tree produces annually and becomes a competition among the wildlife, cattle and the harvester.

Today, out in the forest, gathering 20 to 50 pounds will take several trips to various parts of the forest. There are currently 10 to 13 gatherers and acorn makers on a varied scale of production. The tribal practitioners describe most oaks are producing at 10 percent or less of what they should, if at all.

Almost all the top seven acorn productionists in the North Fork and Auberry communities are going to private ranches, private homes, and gated communities. An observation in the gated community was that the oaks receiving smoke from fireplaces as well as raking and tending from gardeners were healthy and fully producing. This past fall, six 60 pound sacks of acorn were gathered from one particular tree and two more visits were made to the tree during a one week harvest. All the while, the elk and deer were fat and they too ate their winter's delight, which aligns with our gathering philosophy and traditional practices. Meanwhile, the oaks within the gated community not getting tended or receiving constant smoke were producing acorns similar to the percentage of the rest of the black oaks out in the forest. Smoke, fire, tending, and harvesting, which includes knocking (a kind of massage for the tree, to give it energy and continue the relationship between the harvester and the tree), are essential ingredients for sustainability.

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Examples of Cultural Burning:

Mariposa Ranch - resource burning for native food crop and basketry material.

At our Mariposa Ranch, we are burning to restore the three leaf sumac (aka, sourberry bush). The sourberry bush produces a berry used by natives and indigenous people worldwide for food, medicine and seasoning. The stocks are used for baskets, particularly the baby basket, by the local Native American.

After a long drought of fire suppression and a private owner, the bushes are growing old and being attacked by lichen and California dodder. The bushes cover some 100 acres of the 400 acre ranch, and, if caught up in a wildfire, their fuel source would be on the level of a high severity fire. Therefore, the fire has to be applied in small plots to control the fire as well as the restoration.

Even through the fires are high intensity, the root system does not get burnt. So we apply a mop-up procedure in which new top soil is mixed in with the ash and raked over. Burning during the winter and spring time allows for the rain and snow to fall upon the burnt plot(s). Within one week after the rain, new sprouts immediately come out.

We have been burning for the last seven years, and with each burn other plants and tree shoots have sprouted. The smoke affected the pines, water and live oaks, the coffee berry and the elderberry. New bull pines (aka gray pine) have grown 10 to 15 feet tall after receiving the smoke and fire when we burned seven years ago. The water oak is reviving and heavier in leave growth, as well as showing an increase of acorn nuts per annual count, as a result of the smoke and nearby fires over the last couple of years.

The coffee berry and elderberry are healthy and producing a heavier crop output. The native tobacco and Mariposa pussypaws are also enjoying the burn(s). New sourberry shoots are growing straight and tall from the burns two years ago. Still, there is much acreage and many bushes on this property that need fire.

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One of the Tribes' basket makers has gathered from this site for the past three years. Three years ago, 400 shoots were gathered from some ten to fifteen bushes. If healthy, ten bushes should produce 800 to a 1000 shoots. Two years ago, the same basket weaver gathered 800 shoots from twenty bushes, a slight increase as a result of the smoke from the burns. The next two to three years will produce the food and fiber crop output desired from the burns over the past three years.

Crane Valley Meadow Restoration - restoring the deergrass, rejuvenating the spring and water table, recreating the meadow ambiance.

At the Crane Valley meadow restoration site, the cultural burns have a different sort of emphasis. This restoration is on National Forest Land and the Bass Lake Ranger District conducts the burns, with the Tribe on a consulting basis. Here the initial targeted species was, and still is, the deergrass. This site is less than five acres but adjoins larger acreage that was burnt fifteen years ago. This site has a natural spring that was barely flowing when restoration started in 2003.

Before 2003, there were no young oaks except for shrub oak. The site was inundated by a pine plantation. Approximately five resources used culturally were evident when restoration started. The site was also covered by invasive plants such as the Scot's broom (aka Scotch broom). The invasive species as well as the undergrowth were hand removed by volunteers from statewide organizations, community supporters, tribal members, and forestry employees.

The Bass Lake Ranger District burner has put three fires on the upper half of the site and one burn on the lower half. A combination of broadcast burning, coupled with individual plant species ignition and or torching has been applied. The result is that the spring has returned to running through the meadow for most of the summer. Every year resources continue to return to the restoration site; the last count showed forty plus plants, flowers, medicines, teas, and cultural resources now as a harvestable crop. Native grasses have returned in abundance, and during the 2013 fall volunteer day on the site, two pairs of volunteers used cedar boughs to walk the entire five acres beating all the native grasses so the seed would

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be spread out. It took them three hours to accomplish the entire seed scatter. The Tribe took this advice from Prof. Kat Anderson of UC Davis, following what was done in the ancestral era when the Native American livelihood included a plentiful grass seed diet.

The acorn and the deer grass were harvested for the first time as well this past fall. Mint was taken by the shopping bag-full on several occasions. Yarrow is plentiful, and even a few strawberries have been harvested. The fire has also been good for invasive species such as thistle and velvet grass, but native grasses are coming back stronger. As the Forest botanist has stated, ancestral Native Americans never had to deal with exotic, invasive species in the past, but today this is something we have to deal with. Velvet grass, like Scotch broom and other invasives, must be addressed annually.

The wildlife has returned from year one and on. The deer are evidenced by all the new growth chaparral and black oaks that are constantly nibbled down as well as being seen sleeping and eating in the restored site. The black bear has been observed on several occasions lounging near the spring. Deer bones and cat tracks are constant with each visit. The deer bones have multiple teeth markings on them indicating the presence of our smaller relatives. The Pacific Fisher is also known to be in the area. Hawks of several species have been spotted including the American Kestrel, and birds of several varieties are now present, singing and building nests.

Over a dozen new flowers enhanced the meadow restoration site this past year. All the plants, flowers, cultural resources, and wildlife are indicators that the restoration site is well on its way to full recovery. The Tribal members and Forest employees work the site two to three times a year. Volunteers are brought in on an annual basis. A fourth fire is slated to be applied this 2014 year. The oaks have been cleared and prepped with brush and tree limbs in anticipation of the next burn.

Grey's Mountain Black Oak Grove Restoration - regenerating healthiness of the black oak orchard and enhancing the watershed.

This burn area is up above Bass Lake at approximately 5000-foot elevation. The burn is conducted by the Bass Lake Ranger District fuels

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management specialist with Tribal consultation and traditional ecological knowledge input by the North Fork Mono Tribe's practitioners. The burner is mostly interested in maximizing the acreage burned, and this is a two hundred acre prescribed burn.

However, the burner, who himself is Native American, has implemented cultural burn practices along with the prescribed burn. There are some fifty black oaks within the two hundred acres. One section has about thirty of them in a grove. These benefited from the opening up of the canopy and the removing of conifers that were detrimental to the healthiness of oaks, which have been producing less than five percent of their potential crop output.

Small pile burns were applied to the black oaks and the thick duff was burned under the oaks. The trees, because of the conifer canopy, have all grown very tall, reaching for the sunlight. Therefore, a low intensity burn has been good for eliminating parasites and weevils but did not supply enough heat and smoke to the tree tops where the acorns are.

Before actual cultural burn restoration can be applied the landscape must be restored. This is the third year of burning the landscape. The proposed discussion is to prep the oaks for a cultural burn sometime this year and hopefully burn them by next year (2015). This will give a potential harvest by the fall of 2016 and hopefully full production by 2018, as it usually takes up to three years before a good crop harvest can be gathered.

On all three of these Cultural Burn examples, the Tribe and Stanford University have a Relevé Monitoring plan implemented (see addendum, Codding, 2014). The first year data, recorded by University of Utah and Stanford University professors, has indicated an increase in plant life and acorn production, still only a minimal increase but definitely a positive outcome (see addendum, graph and photo's).

As in the Mariposa and Crane Valley restoration sites, the wildlife at the Grey's Mountain oak orchard restoration site has shown an increase in usage and presence. Deer tracks of various sizes, seedling nibbling, large cat tracks, bear excrement, squirrel activity evidenced by the down sugar pine cones, yellow jacket nests and even a Pacific fisher in the

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neighborhood are great indicators that restoration is on its way to being successful.

Rejuvenating the Watershed:

For all three restoration sites, the overall watershed is improving. The root system of the sourberry is now retaining water longer, evidenced by the soil dampness for a longer period of time in the summer. The spring and adjacent run-off stream beds are wet well into August at the Crane Valley site, and the deer grass leaves were still green in late October. The water table is visible in shallow wallows for longer periods of time well into the summer at the 5000-foot elevation of Grey's Mountain Black Oak Orchard.

O'Neal article tells of Jackass Meadow being, "A large, open, wet meadow consisting of 1,500 to 2,000 acres. The meadow land ran off into the forest on all sides and was free of the thickets of small stunted tamaracks and tangled windfalls now encroaching upon it from all sides." "Leaving Jackass Meadow we continued up the trail through a series of beautiful stringer meadows all the way to Granite Creek."

He went on to say, "Today these stringer meadows are gone and the area is covered with millions of puny tamaracks in dense thickets beneath the larger trees. These worthless stunted trees plus the tangle of countless rotting windfalls now make this area very difficult to walk through. Periodic burning used to clean up the windfalls and needle litter besides preventing the growth of the thickets that now dominate the space beneath the forest of large trees. Not only has the area lost its great scenic beauty, but it has also lost most of its value for recreation, hunting, forage for livestock and as a source of valuable water needed in the valley below. Each one of those useless, stunted trees is a wick dissipating moisture from the soil into the air as well as a means of preventing a desirable snow pack by allowing the air to circulate beneath the snow and causing it to melt faster."

In our creation stories, Measuring Worm tells the Nium to take their fires off the land and the water will rise. John O'Neal talks about a clean forest floor that ultimately means a valuable source of water for the Valley

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below. Kinsman speaks of the constant fires of the North Fork Mono that kept their trails and homeland open. Open, meaning to be able to see through the forest, see through the trees. The Mono babies are placed and raised in a hooded basket, a basket made of their cultural resources (a continuum of their harvest sustainability), a basket with designs and an image of being able to see through to the outer world. This constitutes their lifelong relationship to the land, water and fire, upholding their spirituality, philosophy, responsibility and stewardship to all their relatives.

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